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A CACHE OF IDOLS AND CHIPPED FLINT INSTRUMENTS IN TENNESSEE.

When an acquaintance of the writer visited the rooms of the Missouri Historical Society, at St. Louis, and gave the information that during a trip through Tennessee he had seen at a farm-house a number of long, flint "spikes," "that long," holding up his umbrella, I concluded at once that it was another case where the bigness of an object becomes wonderfully stretched by imagination. Who among collectors has not had the experience of going miles after an object that was described as so and so, when in reality it had grown considerably with the mention of the find from one to another. The information was forgotten almost as soon as given, but when a few months later there was received a photograph, made to a scale, and showing the superbness of the objects, no time was lost in making a personal investigation and securing the objects for the Society's collections.

On the banks of the beautiful Duck river, Humphreys county, Tennessee, near Painted Rock, on the farm of Mr. Banks Links, are the remains of an extensive, ancient, stone-grave cemetery, which at one time contained hundreds upon hundreds of stone cists. The land having been in cultivation for many years, wagon-loads of flat rocks used in building the graves have been carted off and the human remains scattered; innumerable objects of prehistoric art have been turned up by the plow and are now among the collections of the Ohio valley.

In December, 1894, an employe of Mr. Links, while plowing in this field, turned up several implements. Their form and size being unusual, time was taken to dig, and the objects, as shown in the accompanying illustration were found. According to the words of the finder, they were simply "in a bunch;" nothing unusual in the manner of the deposit was noted. The find was talked of and commented upon for several months. The precise spot having been carefully noted, further digging was done in the following March. At a depth of a foot or two below where the flint objects had been deposited, the two Images or Idols, Figs. 1 and 2, were found. Whether the deposit had been associated with human remains, it was impossible to determine. From appearances and accounts of the discovery, the images were placed in the ground side by side, in an upright position, the flints in a compact "bunch" immediately above. On all sides were remains of graves, but so many of these graves having been disturbed and the stones removed in cultivation, that with certainty it cannot be said that the find was a deposit with the dead, although the writer inclines to the opinion that they were and that the stone cist lay immediately above the cache of objects. The Images represent a male and female. "Adam and Eve," they were christened by the finders. Both are fashioned out of a soft rock and what is locally known as Claystone (soft limestone), of a yellowish color and coarse texture.

Unfortunately, the Idols had passed into the hands of a speculator and could not be secured, except at an exorbitant price. This general description is therefore from memory, although having handled them and obtained photographs.

A comparison of these two images with many others found in various parts of Ten-

nessee and the south, show the same general characteristics peculiar to all.

Fig. 1. The female is about 24 inches high and weighs probably 50 pounds.

Fig. 2. The male is about 30 inches in height; weight probably 80 pounds.

Figs. 1 and 2 both show side views of the images, the female in a kneeling posture with both arms down and hands clasping the knees; the male in a half kneeling or squatting position, the right limb drawn up to the body on a line with the shoulder, the right arm resting thereon, the left limb under the body and left arm and hand clasping the knee similar to that of Fig. 1. Although rude and somewhat clumsy, the workmanship is better than usual in sculptures of this class, the form of the body in both being exceptionally well modeled and all features, especially about the head, very bold and clear.

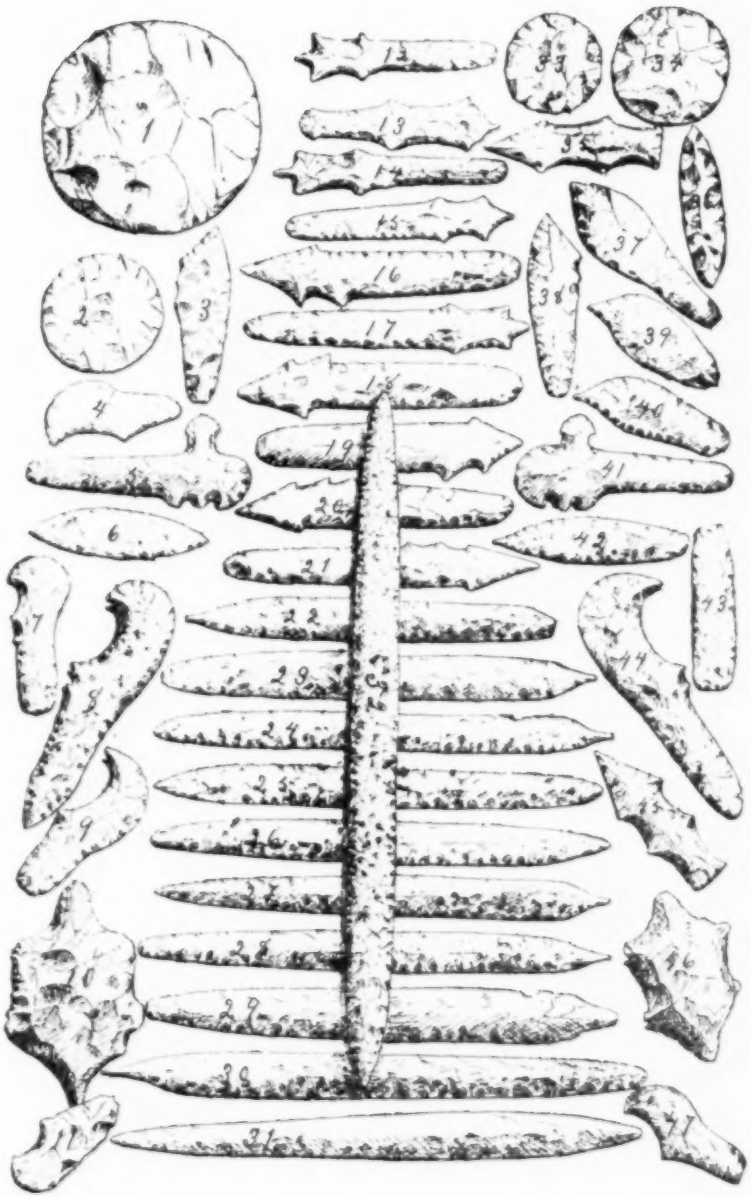
The hair on the female is drawn closely behind the ears, terminating by a peculiar paddle-shaped fillet down the back; on the male the hair is shown by a well-defined ridge across the forehead, covering the ears, and cut square on a line with the neck. On either side of the head, just above the ears, the hair is shown drawn together in a circular knot, a feature frequently noted on terra-cotta images from Missouri and Tennessee. The eyes of the male are very prominent, the reverse being the case in the female, where the eyes are designated by shallow, oval lines.

The mouth of the female is open, with thin, well-cut lips, while the male is shown with tightly closed mouth and exceptionally thick, protruding lips.

The remarkable series of 46 flint implements, Figs. 1 to 47, inclusive (Fig. 43 not belonging to the find), show almost all the rare forms of so-called ceremonial flints and tokens which have been found in the Tennessee river valley and which seem to be unknown in neighboring localities, Fig. 32 being the longest and finest chipped flint in the world, as far as known.

With the exception of Figs. 3, 5, 37 and 41, similar forms have been found at various times in the same locality. With three or four exceptions, the objects are all of the same material—a dull grey or brownish color, cherty flint.

A remarkable and unexplainable feature of the find is, that with the exception of the long, slender, double-pointed specimens, all the forms, with one exception, are in pairs or two of each form.



Figs. 1 and 2; 3 and 38; 4 and 11; 5 and 41; 6 and 42; 8 and 44; 9 and 47; 10 and 46; 35 and 45; 39 and 40; 12 and 14; 13 and 15; 18 and 19; 20 and 21 are pairs.

Figs. 1, 2, 33 and 34 are almost true circles of flint, the larger measuring just 9 inches in diameter; the others 5, 4 1-2 and 4 inches. Fig. 1 is less than one and one-

half inches thick in the center, the others one-half inch, all tapering gradually from the center to a sharp rim or outer edge.

Figs. 3 and 38 are each 7 1-2 inches long, 2 inches deep, of oval-leaf form, with two deep circular notches or indentations on one edge, near the center line of the object.

Figs. 4 and 11 are odd hook shapes, Fig. 11 being very rude or possibly unfinished. Fig. 4 is very thin and delicately chipped, the handle (?) being entirely different from the other hook forms. The double reverse curve of the upper edge is unusual. These are 5 1-2 and 5 inches long, 2 1-2 inches wide at the widest part. Figs. 5 and 41 are certainly "Ceremonial," and by ceremonial one usually means that no more questions should be asked. The form seems unique and at once suggests a sort of medieval, European battle axe and war club combination. Both are exquisitely chipped and as near alike as two peas; the head being flat and considerably thinner than the handle, which is quite slender and rounded, the interence is drawn at once that they were used with the hand. The upper edge has an odd, flaring, axe-handle-like projection with a very keen edge, the lower edge three equally wicked and keen semi-circular projections and indentations. They measure respectively 8 3-4 and 9 inches in length. The handles are one inch thick, the blade, one-half inch at the center, gradually tapering to a sharp edge. Figs. 6 and 42 are in form like the long, oval-leaf shaped knives found throughout the United States. Fig. 6 is of a bright, yellow chert, each 7 and 8 inches in length.

Fig. 7 resembles the other hook forms, being, however, of a longer and narrower, thicker type, with two hooks or circular indentations, one of which is small; length, 6 1-2 inches. Figs. 8 and 44 are very large, beautifully hooked or sickle shape objects, each just 10 3-4 inches long, very symmetrical, and with the peculiarity of having a very deep notch, forming a double barb at the termination of the lower end of the hook or sickle curve. These are 2 3-4 inches wide at the upper portion, 3-4 of an inch thick.

Fig. 9 is a counterpart of Fig. 8, but smaller and without barbs or notch well chipped, the sweep of the curve having an indentation of one and one-half inches; length, 6 3-4 inches.

The identity of Figs. 10 and 46 is well shown in the larger specimen. In the original objects the flat, under side, the oval or rounded back, the thick, tapering tail, the oval-pointed head and the four legs with notches or serrations imitating claws (which the artist fails to show in the drawing), at once illustrate to us the turtle. Among the many thousands of chipped objects that have come under the writer's notice, this is by far the finest example of flint chipping which he has seen; 8 3-4 inches long, 5 inches wide, 1 1-2 inches thick. The smaller one (Fig. 46), although ruder in form and workmanship, there is no mistaking its identity. It measures 6 3-4 by 4 inches.

Figs. 35 and 45, a dagger form with double barbs and handle, are exceptionally well made and symmetrical. General Thruston, in his Antiquities of Tennessee, page 231, says: "The joints on the sides doubtless had some significance in the system of tribal and family symbols, etc," and "that they were probably made to order by the old flint experts," etc. This fits! How else can we account for the many and almost indescribable forms and beauty of workmanship exhibited in these objects? Figs. 35 and 45 are each 7 and 7 1-2 inches in length; two inches wide across the barbs.

Fig. 37. A well-proportioned, paddle-shaped object, 8 3-4 inches in length, the lower end or handle being thick, gradually tapering to the point, less than 1-3 of an inch in thickness at the widest part.

Figs. 39 and 40. A pair having the oval-leaf shape outline with that part of the edge near the point concaved and deeply serrated. They are very thin, well chipped, 6 1-4 and 6 3-4 inches in length.

The five objects, Figs. 12, 13, 14, 15 and 17, are respectively 8, 8 1-4, 9, 9 1-2 and 11 3-4 inches in length.

*"The symmetry and beauty of the handle, the exact projections on opposite sides, the tapering forms and the evidently important place these rare objects must have held in the religious and social life of

*Thruston, Antiquities of Tennessee, page 240.

the old Tennesseeans, all invest them with peculiar interest.

"Here we have, in all probability, the sceptres or royal maces once used by the magnates of the race that built the mounds and fortifications of middle Tennessee. They may have been the insignia of chieftainship or of the priesthood."

Figs. 16, 18, 19, 20 and 21 represent other forms of these sword and hook shaped objects, although the barbs on either edges suggest the harpoon.

Figs. 16, 18 and 19 each have one long slender barb projecting from one edge and two barbs immediately opposite. Figs. 20 and 21 have three barbs on each edge. The handle part of these is thick and rounded, gradually becoming thinner and tapering to a keen point. They are respectively 10 3-4, 11 1-2, 11 3-4 and 13 inches in length.

The oval, double-pointed "flints," Figs. 22 to 32, inclusive, are, as far as known, the finest examples of flint chipping that have been discovered in North America and, possibly, in the world. All are very thin, (none more than three-fourths of an inch, several scarcely one-third of an inch), and delicately formed—less than one and three-fourths inches in width and measuring in length 14¾, 17½, 18¼, 18¼, 18½, 19, 19, 21¼, 22 and 28 inches each.

The remarkable length of the objects would at once suggest coarseness, but the chipping is as remarkable as is the extreme length of the objects, the chipping showing the same delicacy of touch as on the smaller arrows and spears. The repeated quotation "that they were probably made to order by the old flint experts" is certainly not out of place.

To have gathered the objects singly here and there in a region wonderfully prolific in antiquities, would not have been of much moment. The significance of being deposited together and their uses, whether useless as weapons or too fragile for mechanical purposes, is a solution for another paper, perhaps by others.

WILLIAM J. SEEVER.

St. Louis, May 10, 1897.

A CLASSIFICATION OF ARROW OR SPEAR-HEADS OR KNIVES.

Classifications of these implements have been attempted by various archaeologists, but none of them seem to have met with general approval or been adopted in common use. Some classifications were so minute in detail that it was impossible to remember the different names and forms. Others have attempted to follow the botanical nomenclature and adopt the names of leaf forms. The latter appears good in theory, but is impracticable and adds to the confusion. The writer has made an essay at classification which seems simple, compact, with divisions at once definite and easily understood, yet, taken together, they appear to cover the entire subject.

During the early prehistoric ages, these implements were all made of stone, and all except those of slate were chipped and not ground or polished. Some of the forms were perpetuated in historic times in bronze and iron. The practice of chipping these implements from stone instead of grinding or polishing them, continued throughout prehistoric even into historic times. The North American Indians, and indeed all modern savages using such implements, have always made them by chipping, and, with the exception of slate, never by grinding or polishing.

According to the writer's classification, the primary divisions of arrow and spear-heads or knives, are as follows:

1. Leaf-shaped. Classes A, B, C.
2. Triangular.
3. Stemmed. Classes A, B, C.
4. Peculiar forms. Classes A, B, C, D, E, F, G.

I. LEAF-SHAPED.

This division includes elliptical, oval, oblong and lanceolate forms, bearing relation to the shape of a leaf, and are without stem, shoulder or barb.

Class A.—This has finely-chipped implements of the form of a laurel leaf, elliptical and pointed at both ends. Their widest place is 1-3 or 1-4 the distance from the base. They correspond substantially with the French Solutreen type of implement belonging to the Paleolithic period of the Stone Age. (Figs. 1 and 2.)

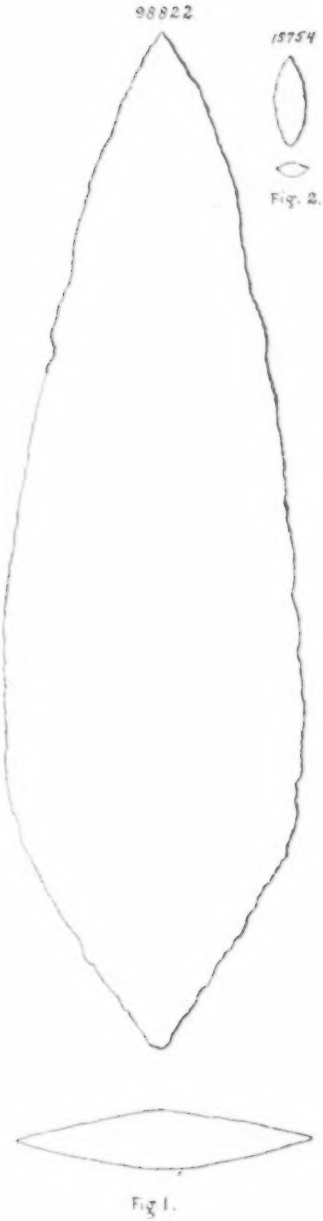

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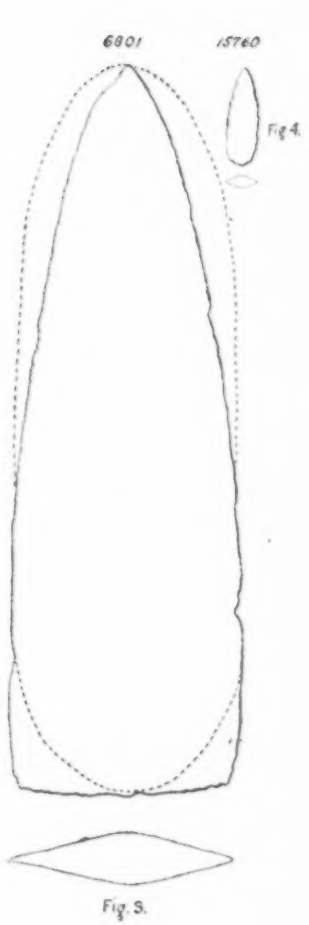
Fig. 2.
Fig 1.


6801
15760
Fig 4.
Fig 3.

21626
15161
Fig 6.
Fig 5.

Class B.—This class includes a variety of oval and ovoid forms. The specimens are usually thicker and wider than those of Class A. They may be more or less pointed, with bases convex, straight or sometimes slightly concave. (Figs.3 and 4.)

Class C.—These are long, thin blades, narrow, with nearly straight parallel edges, more like a poignard. The bases may be either convex, straight or concave. They are peculiar to the Pacific coast in the United States of America. (Figs. 5 and 6.)

II. TRIANGULAR.

This division includes all specimens which, according to geometric nomenclature, approach the form of a triangle, whether the edges or bases be concave, straight or convex. They are without stems and, consequently, without shoulders, though in some specimens the extreme concavity of the base produces barbs. (Figs. 7 and 8.)

III. STEMMED.

This division includes all varieties of stems, whether straight, pointed or expanding; whether round or flat, and whether the bases or edges be convex, straight or concave.

Class A.—Lozenge-shaped, stemmed, but not shouldered nor barbed. (Figs. 9 and 10.)

Class B.—Stemmed and shouldered, but not barbed. (Figs. 11 and 12.)

Class C.—Stemmed, shouldered and barbed. (Figs. 13 and 14.)

IV. PECULIAR FORMS.

This division includes all forms not belonging to the three others, and provides for those with such peculiarities as distinguish them from other divisions, but which, by reason of their restricted number or locality, can scarcely form a division for themselves.

Class A.—Beveled edges (Fig 15). The bevel is almost always in one direction. These are peculiar to the United States, and are confined principally to the parallelogram of the lake and interior valley region, bounded by Ohio and Georgia, Arkansas and Minnesota. It was for a long time believed that these were simply freaks of the workmen and had no signification or separate use. But experiments have demonstrated that the bevel is sufficient to give the arrow a rotary motion when shot from the bow. Whether this was accidental or what was the purpose of the maker, has never been discovered. If a rotary motion was the desideratum, why it was not produced by the feathering of the arrow has not been explained.

Class B.—Serrated edges (Fig. 16). The workman, instead of making the edges of the implement smooth, even and regular (which was the usual course), chipped them at slight intervals, leaving sharp and pointed proturberances, producing serrated, tooth-like edges which would make a rough and jagged wound.

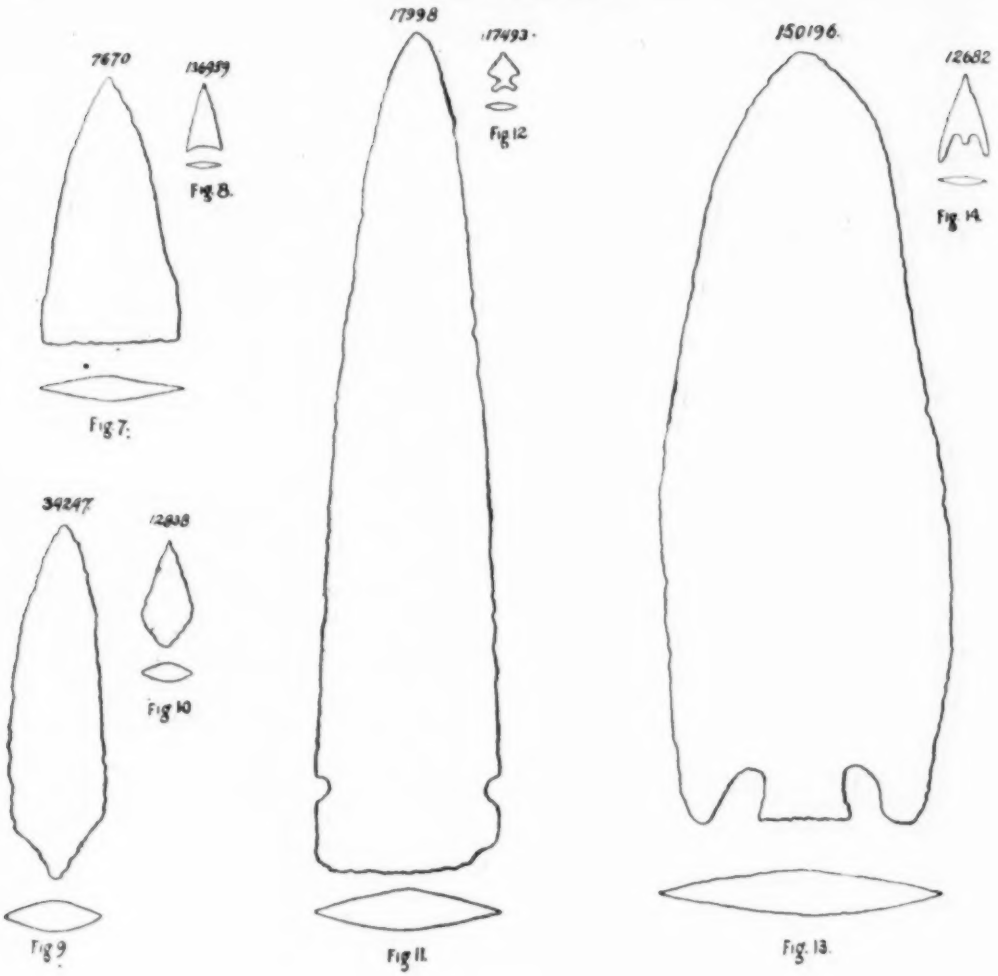
Class C.—Bifurcated stems (Fig. 17). In this class the implement may have such form and characteristics as alone would assign it to another division or class, but the bifurcation of its stem is sufficiently peculiar to require a different assignment, and so this class has been established. The bifurcation of the stem makes it forked so that it can straddle the shaft when being inserted in the split, and this slight fastening, whether by sinew or gum, will hold it in place.

Class D.—This class has long barbs which are square at the ends (Fig. 18). While possibly not confined to these countries, they are seemingly more plentiful in England, Ireland and Georgia, U. S. ..., than elsewhere. No satisfactory explanation has been given of their peculiarity, either of form or locality.

Class E.—Triangular in section (Figs. 19 and 20), these are peculiar to Chiriqui, Colombia, and Scandinavia.

Class F.—Thin, almost flake-like in appearance, not made pointed, nor are the edges worked down by secondary chipping (Fig 21). The cutting edge is at the front, at the broadest end—*tranchant transversal*—and thus propelled, will make a wound large enough for the arrow-shaft to follow. These implements are chisel-shaped, and contention has been made whether they were not chisels instead of arrow-heads.

They have been found in Europe attached by sinew lashings to a wooden handle which, from its size, might have been either



chisel-handle or arrow-shaft, while it was so broken in length as to leave the question undetermined. The author has suggested that these might have been the implements used in prehistoric surgical trepannations, a purpose for which the implement was in every way fitted.

Class G.—Large implements of slate (Figs. 22 and 23), usually with pointed stem or tang for insertion in a longitudinal hole in the handle. These are almost the sole class of prehistoric arrow or spear-heads found which have been ground or polished. They are lozenge-shaped in section, are peculiar in North America to the Eskimo country and to the Northeastern States.

The foregoing practically covers all forms of these implements; but great differences in size are met with between the various classes, and even within each class. For

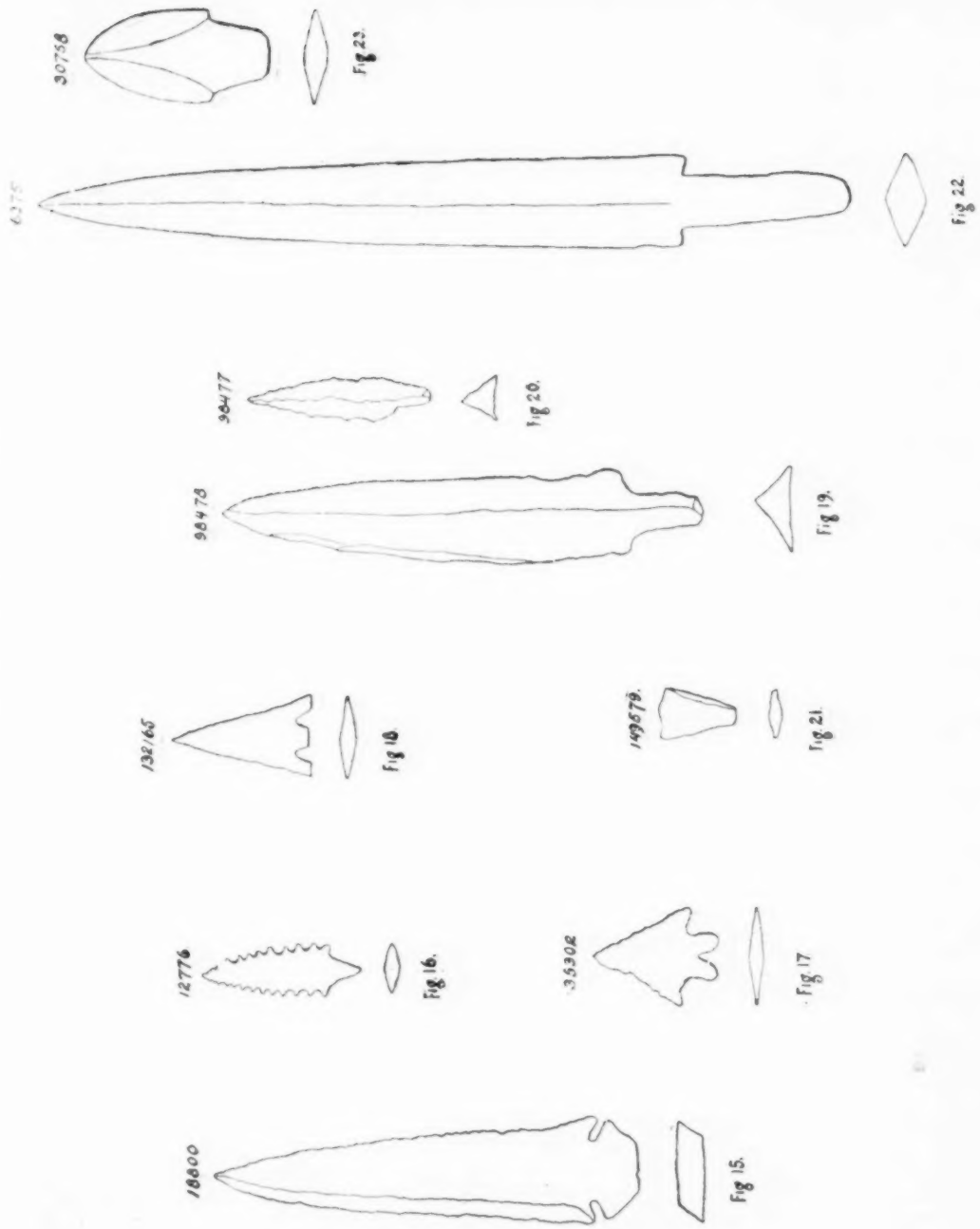

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Fig 23.
Fig 22.
Fig 20.
Fig 19.
Fig 18.
Fig 21.
Fig 16.
Fig 17
Fig 15.

example, the leaf-shaped implements of Class I have been found in France, Mexico and the United States, and varying in length from 13 1-2 inches down to one inch. Single illustrations of these specimens, drawn to a reduced scale, are therefore almost valueless to show the differences in size. They should be drawn either full size or, if reduced, they should be represented in series so that they can be compared. The illustrations here given are for size, as well as form, and will represent the largest and the smallest specimens. In order to make these illustrations complete, and for a proper understanding, the series should be filled by sizes shaded into each other, because specimens are found representing every quarter-inch between these extremes. These implements are usually made of chippable rock common to the locality, though in many cases they, and possibly the material, have been transported long distances.

The black, pyromachic flint or chert, of Brandon and Cissbury, in southern England has, in the form of arrow-heads, been disseminated practically throughout the country. The white flint or chert from the Spiennes quarries in Belgium, has also a wide distribution. The same is true of the white flint of northern France. The beeswax flint of Grand Pressigny, central France, has been found in twenty-nine different departments of that country, and extends on to the east nearly to Lake Geneva. The yellow flint of Scandinavia is distributed throughout the country. The same is true of the flint arrow and spear-heads from the various quarries in the United States. The material in Flint Ridge may be found in any part of Ohio, and not infrequently in Kentucky and West Virginia. The white novaculite of Arkansas has been found in Illinois and Ohio. The white and yellow flint of Georgia extends throughout it to the adjoining state of South Carolina. Spear-heads of obsidian, from the Rocky Mountains, were found by Professor Moorehead in the mounds of the Scioto Valley, Ohio.

These statements show the distribution in prehistoric times of arrow and spear-heads. The details would carry us far beyond the limits of the present paper.

The question may properly be asked as to the differences of functions between these flint implements, especially those of extreme sizes. As suggested in the title, they may have served as arrow or spear-heads, or as knives, but therein the sole difference would be determined by the size of the implement, and the size and the kind of the handle in which it was inserted. As the handles have almost universally disappeared from these implements belonging to prehistoric times, it is only by comparison and suggestion that any determination can be given as to function.

One of these implements of a large size would scarcely be supposed to have served as an arrow-head—it would be too heavy. Yet the infinitely smaller ones undoubtedly did serve for that purpose, while others so large as to be out of the usual category, can be shown to have served in this capacity also. It is not infrequent to find arrow-heads in use among modern savages of the infinitesimal type; that is, say three-fourths of an inch long, one-half inch wide, and one-eighth of an inch thick, though arrow-heads have been found four inches long, one and a half inches wide and three-eighths of an inch thick. I have one of that size which was found in the pelvic human bone from a burial place in Kentucky. The implement had entered the body from the rear, and penetrated so as to be almost completely buried in the flesh. Arrow-heads of large size have been used by savages against large game like buffalo and elk.

Probably the only true means of determining the function of this implement as to whether it was an arrow, or spear-head or knife, is by the handle. If the handle was stout and long, it became a spear. If stout and short, it became a javelin. If stout and still shorter, it might be a knife. If slim, and say two or two and a half feet long, it might be an arrow-shaft; if that many inches, it might be a knife. It is considered impracticable to determine from an inspection of the flint or stone arrow-head as to what kind of handle it had, and for which of these purposes it served.

LIST OF ILLUSTRATIONS FOR "CLASSIFICATION OF ARROW, OR SPEAR-HEADS, OR KNIVES."

Figs. LEAF-SHAPED.

1. Class A.—Oaxaca, Mexico. 12½x3⅝x¾ inches. Cat. No. 98,822, U. S. N. M.

2. Class A.—California, U. S. A. 1⅛x⅝x3-16 inches. Cat. No. 15,754, U. S. N. M.

3. Class B.—Tennessee, U. S. A. 9x2⅞x⅝ inches. Cat. No. 6,801, U. S. N. M.

4. Class B.—California, U. S. A. 1¼x7-16x3-16 inches. Cat. No. 15,760, U. S. N. M.

5. Class C.—California, U. S. A. 10¼x1⅝x¼ inches. Cat. No. 21,626, U. S. N. M.

6. Class C.—California, U. S. A. 1⅞x½x⅛ inches. Cat. No. 15,161, U. S. N. M.

TRIANGULAR.

7. Ohio, U. S. A. 3⅝x1⅝x5-16 inches. Cat. No. 7,670, U. S. N. M.

8. Kansas, U. S. A. ⅝x7-16x1-16 inches. Cat. No. 136,959, U. S. N. M.

STEMMED.

9. Class A.—Lozenge-shaped, Massachusetts, U. S. A. 4⅝x1 3-16x⅝ inches. Cat. No. 34,247, U. S. N. M.

10. Class A.—Lozenge-shaped, Oregon, U. S. A. 1¼x⅝x¼ inches. Cat. No. 12,838, U. S. N. M.

11. Class B.—Stemmed and shouldered, Rhode Island, U. S. A. 10½x2⅞x½ inches. Cat. No. 17,998, U. S. N. M.

12. Class B.—Stemmed and shouldered, Kentucky, U. S. A. ½x⅜x1-16 inches. Cat. No. 17,493, U. S. N. M.

13. Class C.—Stemmed, shouldered and barbed, Arkansas, U. S. A. 9½x3½x9-16 inches. Cat. No. 150,196, U. S. N. M.

14. Class C.—Stemmed, shouldered and barbed, Oregon, U. S. A. 1½x⅝x⅛ inches. Cat. No. 12,682, U. S. N. M.

PECULIAR FORMS

15. Class A.—Beveled edges, Tennessee, U. S. A. 5½x1¼x⅝ inches. Cat. No. 13,800, U. S. N. M.

16. Class B.—Serrated edges, Oregon, U. S. A. 2x⅝x3-16 inches. Cat. No. 12,776, U. S. N. M.

17. Class C.—Bifurcated stems, Ohio, U. S. A. 1 9-16x1¼x3-16 inches. Cat. No. 35,302, U. S. N. M.

18. Class D.—Long barbed, with square ends, Georgia, U. S. A. 1⅝x1 1-16x¼ inches. Cat. No. 132,165, U. S. N. M.

19. Class E.—Triangular in section, Chiriqui, Panama. 6¼x1¼x½ inches. Cat. No. 98,478, U. S. N. M.

20. Class E.—Triangular in section, Chiriqui, Panama. 2⅝x9-16x7-16 inches. Cat. No. 98,477, U. S. N. M.

21. Class F. — *Tranchant transversal.* France. 1x⅝x3-16 inches. Cat. No. 149,579, U. S. N. M.

22. Class G.—Slate, polished, Maine, U. S. A. 10½x1¼x⅛ inches. Cat. No. 6,375, U. S. N. M.

23. Class G.—Slate, polished, New York, U. S. A. 2⅜x1¼x5-16 inches. Cat. No. 30,758, U. S. N. M.

Note—The Plates accompanying this article are one-half size of original relics.

THOMAS WILSON.

THE LAKE DWELLERS OF SWITZERLAND.

I was much interested during my visit to Switzerland last year with the remains of the settlements and relics of its ancient Lake Dwellers. In most, if not all, of the several lakes there, as well as those in the northern part of Italy, traces of their prehistoric habitations, together with relics of their household utensils, ornaments and implements of war have been found.

The manner of building the foundations (we can only observe remnants of the substructure and we know little or nothing of the buildings that were above the water line), differs somewhat on account of the varying formations of the bottoms of the lakes. In many instances where the bed of that particular part of the lake which had been chosen was of clay, piles driven down a short distance were sufficient support for the platform upon which the houses were to be built. In some cases these piles were connected under the water by heavy cross-beams, thus making them more secure. In other localities where the lake bottom was too hard to admit of piles being driven into it, stones were placed around the base of upright, wooden posts, that served as supports for the building, or, more correctly, the platforms above.

The clusters of houses or villages were usually situated a short distance from the shore in some protected cove, where the water was shallow. The obvious reason why these people built their residences over the water instead of on the land was for the protection which it afforded them from incursions of wild beasts, which we know were numerous in those days in that part of Europe. Perhaps it was also for security from attacks of the fierce mountain tribes of savages.

Some of these villages over the water were as much as a thousand feet in length and several hundred feet in width. Only remnants of the piles supporting them now remain; and among these are found the relics of the daily life of their unknown builders and occupants. In the refuse that accumulated beneath the houses these are found by digging in the water or by dredging, consisting of tools, utensils, imple-

ments and ornaments, made of bronze, stone, bone, horn and pottery. Of these objects, recovered in great numbers, I will speak separately.

Of Bone—Which material was used extensively, many needles from two to eight inches in length occur. Awls, also, of about the same length as the needles, are numerous. These closely resemble the specimens from American mounds and stone graves. There are also bone knives, some not more than an eighth of an inch in thickness, several inches long, and an inch or less in width. Bone points for fish spears and arrows are often seen; and various other articles of bone, the use of which is difficult to determine.

Of Horn—The only horns used by the Lake Dwellers were those of the stag or reindeer; and they were utilized chiefly for handles, or sockets for celts, chisels, gouges, etc., of stone. The larger parts of the antlers were used for these purposes; the smaller parts and tips were made into various objects similar to those of bone.

Of Bronze—The knowledge and use of this compound metal marks the advance and stage of culture of these interesting people of the lakes. This material was very extensively used by them in the manufacture of a great variety of things useful and ornamental, such as swords, knives, fish hooks, javelin heads, pins, needles, bracelets, etc., etc. Their bronze swords were similar to those found in other parts of Europe, of the same era, rather short, broad and thick; some plain, others highly ornamented. Their bronze knives are of two patterns, some very large and curved, and thick on the convex edge. These were evidently intended for hard usage, probably in harvesting; for we know that these people raised barley, wheat and flax. The smaller knives were of finer workmanship, averaging about five inches in length, very thin, and now, after having lain buried in the mud of the lake for twenty centuries or more, still have fine, cutting edges. The javelin and spear-heads resemble those of Roman and Etruscan make, and perhaps many of them were forged in Rome and wielded by the Roman invaders of Helvetia. The bronze fish hooks are almost identical in form with those of iron used by us today, having at the end of the shaft a flat head to retain the line, and sharp point and barb. They are recovered in great quantities. The needles of bronze are very much like those of bone, but rather heavier. The pins are of all sizes and many patterns, and were employed principally as ornaments. They range in length from two to fifteen inches, and some of them must have been beautiful when new. Specimens of them are seen finely engraved with fancy figures their entire length; some with flat ornamental, heads; others surmounted by balls or other designs an inch or more in diameter. The bronze of which they were made was susceptible of high polish and, of yellow color, glistened like gold. Many of the bracelets are quite plain, others are most elaborately engraved and beautified. Bronze buttons were in general use by the lake people. They are of all kinds and shapes, from half an inch to four inches in diameter, usually concave disks with a small eye in the center of the concave side for attachment to the garment. Probably the most interesting of the bronze, lake relics is their so-called "money." This is in the form of rings, about three-quarters of an inch in diameter and not more than one-eighth of an inch in thickness either way. Hundreds of these rings are sometimes found strung on a larger open one, like our key rings, showing how the capitalists of the pile dwellings carried their loose change.

Of Pottery—A great deal has been recovered, comparatively little of it, however, in perfect state of preservation. It is mostly of coarse texture, rudely formed, and but few pieces displaying taste or art culture in this line. But few of the vessels show any ornamentation, and all were coarse and only saw service in the kitchens.

Some textile fabrics, well woven and well preserved, have been recovered; and charred fruits, grain and seeds, and even bread, have been found in large quantities.

A few words now as to how these relics are discovered and brought to the surface. Last summer I visited a small fishing station a few miles south of Neufchatel, on the west shore of the lake Neufchatel, and from the fishermen there obtained a number of specimens just brought up from the water. This was an ideal spot for the vil-

lage of the Lake Dwellers, being a deeply-indented cove, facing the sunlit east, and well protected on the north and west by a high ridge of woodland. The water here was shallow, with a hard, sandy-clay bottom. A fishing net was seldom hauled in at this place without having some relic in or attached to it. Many are obtained in this way, and others are brought up by divers; and some are dug out of the mud and sand of the shores.

The prices asked for them varies considerably. Celts are valued according to the material of which they are made; not in regard to their size or workmanship. Small celts of jade sell for 25 francs ($5.00), while larger ones of green stone, fastened with asphaltum in their original horn sockets, can be bought for from ten to fifteen francs each. Bronze pins and needles are offered at all prices from half a franc (10 cents) up to several dollars each. Other specimens are valued about at the same rates.

These relics of the Lake Dwellers having been discovered but comparatively a short time ago are still plentiful and easily obtained. Our local museums here should now secure typical specimens of them, as much that is interesting and instructive can be gained by contrasting the arts of our prehistoric Indians with those of ancient Helvetia. There are many points of similarity between them; they show alike the same wants, impulses and inventive capacities of the two people, and the marked step in upward progress that the one had gained in advance of the other.

D. I. Bushnell, Jr.

St. Louis, Mo.

The Americans, under Mr. Haynes, who are exploring the buried ruins of the ancient Chaldean city of Nippur for the University of Pennsylvania, have found far down beneath the remains of a succession of Assyrian cities, one built upon the ruins of another, records on stone dating 5000 years B. C. "Ancient as these inscriptions are," says Mr. Boscarven, "they are not the records of a nation just emerging from savage life, but of rich, powerful, cultured kingdoms; thus indicating centuries of previous growth and development."

THE HOPEWELL GROUP.

Warren King Moorehead.

(Copyright, 1897.)

(*Continued.*)

Mound No. 18, southwest from it, Squier & Davis have not recorded.

No. 18. This small mound contained several decayed skeletons and a good altar,* (the latter being shown in Fig. 3) several skulls, bones, cut and perforated, were found near the skull and, from their appearance, most of them, I judge, were worn as ornaments. (See Fig. 4.) A black platform pipe, somewhat damaged, also accompanied one of the skeletons. Dr. Cresson says of this:

"It will be interesting to mention a peculiar habit of the people who erected the tumuli at Hopewell's farm, that of placing along side of their dead, ornaments made of the superior and inferior maxillary bones. In mounds Nos. 18, 23 and 3 at the above mentioned earthwork, the upper jaw was found placed alongside of the left humerus about four inches below the articulation of the glenoid process of the scapula. The specimens in question had been in two cases cut across the alveoli a little below the level of the incisors and bicuspids, and in another instance, just above. The work of cutting across the bone and teeth had evidently been done by some sharp instrument, probably of metal. It has been suggested that the specimens had been sawed across and then ground down, but the incisions are so sharp, and the marks of the instrument with cutting edge so plain, that we deem this to be impossible."

Mound 19 contained very little of interest and sheds no particular light on the structure. I have often wondered, in digging small mounds, if members of another tribe shortly after the interment took place, dug down to the bodies and robbed them of their valuables. We have found mounds which did not appear to have been disturbed in recent times, or, in fact, within several hundreds of years, which present just such conditions. It is possible, but is it probable? Would not a rival tribe be tempted, knowing that the most valuable property of the de-

*Two accounts speak of this as having been found in the Effigy and are, therefore, in error.

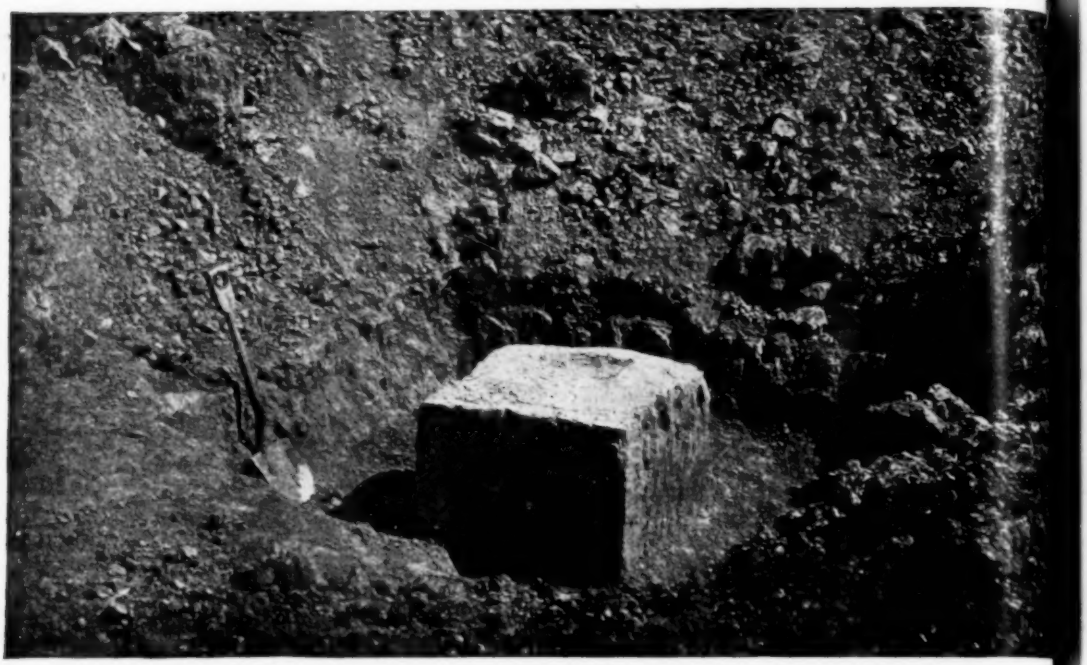


FIG. III—Altar from Mound No. 18.

ceased and offerings from his friends were placed with his remains? Was their fear of the supernatural sufficiently strong to prevent them from robbing the grave?

No. 19 was an example of a mound which had been previously disturbed. A stone layer was found extending through the center. We uncovered a rude altar slightly burned. The bowl of this contained carbonized galena, small pieces of bones, mica, fragmentary flint and bone implements and some quartz. The altar was taken out entire. As it was only partly burnt and not much harder than sun-dried brick, no little difficulty was experienced in removing it. We did not ship it and it yet lies in the mound (boxed) and covered with three feet of earth.

Professor Putnam had taken out a very large altar at the Turner Group, after a great deal of trouble, and presented same to the Cincinnati Society of Natural History—it being so heavy that it was liable to break on account of its weight—hence he decided not to ship it east. This was the only altar preserved in a museum in the United States up to 1891. We took out no less than four, shipping one to Washington, two to Boston and one to Chicago.

These altars weighed from 400 to 850 pounds, and all went through in good condition. One from the Effigy mound was broken in moving it from the dairy building to the Anthropological building on the W. C. F.'s grounds.

Altars are removed in the following manner. A deep trench, some four or five feet in width, is cut entirely around the object. A frame work of heavy planks 12 or 15 inches wide is fitted around the upper part. If the depression is deep this frame work is made eighteen or twenty inches in width and hammered down until it fits very closely. Underneath, at one end, the men cut a narrow strip four or five inches in width, run a board through and fasten it to the bottom. Other cuts are made and boards slipped in, one at a time, until the whole upper portion of the heavy mass of burned clay is boxed. Then it is carried out, straw and grass to the thickness of several inches are put on the top and a strong cover-

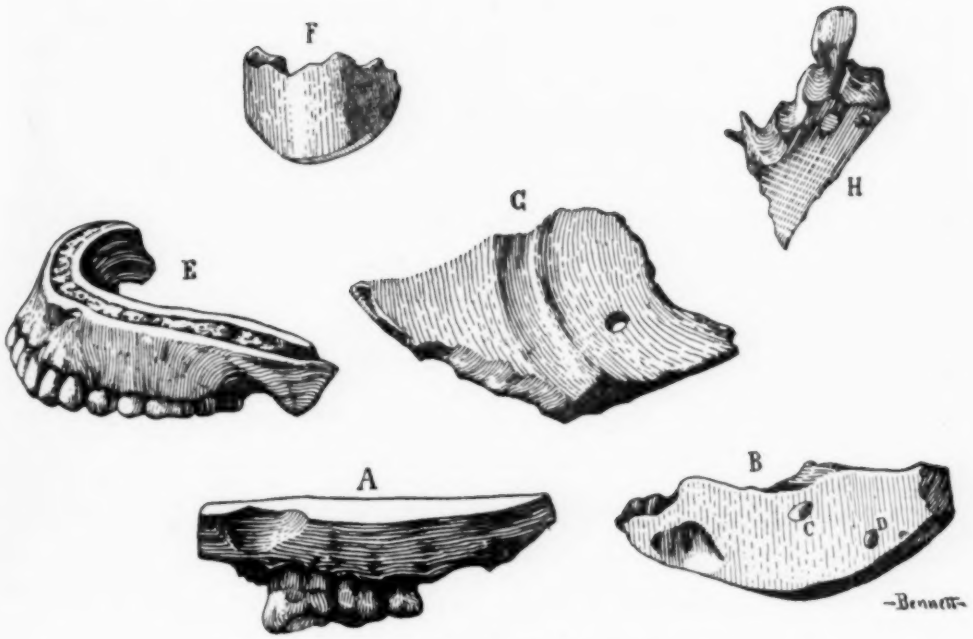
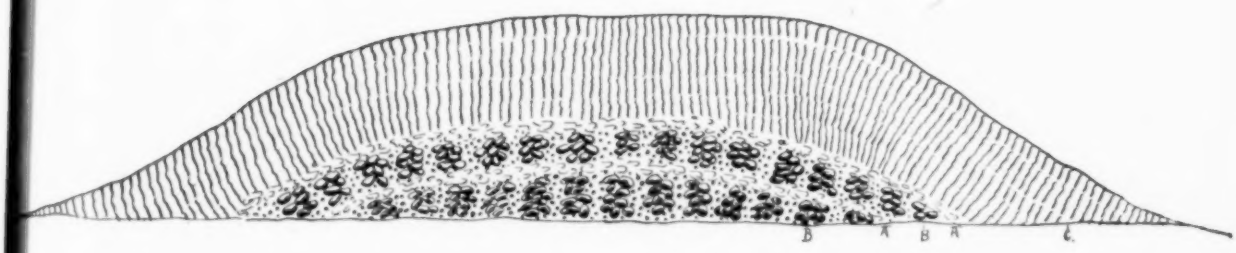


FIG. IV—Ornaments cut from Cranial Bones, Mound No. 18.



Mound № 2 — Cross Section.

A - Sand Layer.
B - Piles of Discs.
C - Earth.

Figure V.

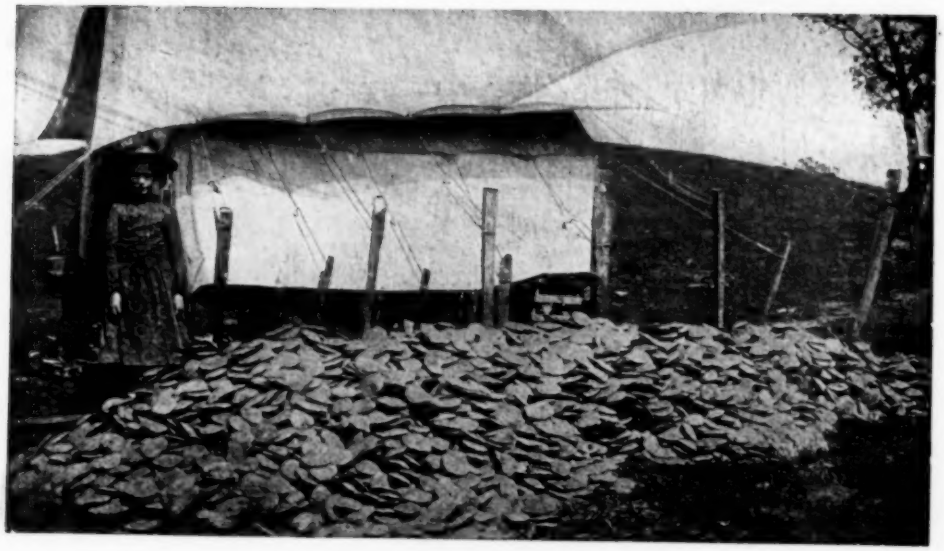


FIG. VI—Pile of Discs by Headquarters' Tent.

FIG. VII—Discs and Large Spear, from Mound No. 2 (Greatly reduced).

Fig. X.—Camp Scene at Hopewells. The Central Figure (bearded) is Dr. H. J. Cresson.

ing nailed across. It took our force about a day and a half to properly remove the largest altar.

Mound No. 2. This remarkable structure was partially examined by Squier & Davis. They took out 600 flint discs and reported that about 4,000 remained. Squier & Davis were exceedingly modest in their statement. It is considerably less than one-half of the original number. The following table was prepared in my official capacity as field assistant:

Excavated from the mound by our men	7232
Taken out by Squier & Davis	600
Taken out by Mr. Steel	200
Given Mr. Hopewell, prior to official count	80
Found upon the surface near mound afterwards	42
From other sources	31
Total	8185

A large shouldered spear head was the only implement in the entire number differing from the circular and leaf-shaped outlines of the disks. It can be seen in Fig. VII, together with various forms of the disks.

Squier & Davis report that the disks were placed upon edge in several layers. Their error is due to a hasty examination. In taking the mound entirely out, we found the disks lying in little pockets or bunches of 12 to 15 each, with layers of sand around each mass. (Fig. V.) The deposits covered an area, nearly circular in form, of 22 by 26 feet. In places they ran from a foot to 18 inches in depth. The builders of the structure had apparently carried in their hands all the disks they could transport readily and deposited them upon the same level, while others of their friends poured sand between and over each deposit. Having completed so much of the mound, a second series of deposits was made, exactly like the first. Most of the disks are of a light blue color; some are gray. They are made from flint nodules which occur in Indiana and Tennessee.

The magnitude of the find surpasses any discovery previously made. Fig. VI represents the specimens heaped at the side of our tent. They cover a space of 15x8x3 feet, and weigh nearly 5,000 pounds. It required four horses to haul them from the mound to the camp site.

(CONTINUED NEXT MONTH.)

EDITORIAL.

One of the most interesting chapters of Hon. J. V. Brower's valuable book, recently published, entitled "The Missouri River and its Utmost Source," is the last one, the third of his "Archaeological Addendum on "Quivira; The Elliott Indian Village Site." The location of this ancient village of unknown aborigines is in the Briggs farming district of Geary county, Kansas, seven miles due south of the Kansas river and fifteen miles from the city of Manhattan. "During a past geological era," says the author, "a limestone formation accumulated at this point, and there is a very considerable deposit of blue chert, the whole bearing a fossiliferous element of an encrinal character. Since the deposit of this blue flint erosion has taken place a picturesque valley has been formed, leaving the limestone and chert as an outcropping on the high bluffs. At this place," he goes on to state, "the second terrace above the creek on the north side, was found to have been, at some unknown date, the site of an extensive Indian village. Two hundred and fifty chipped stone implements of different kinds, sizes and varieties were picked up along the terrace and placed in convenient piles. Flint blocks, rejects, finished and half-finished points and knives, broken implements and a remarkable quantity of spalls, large and small, were scattered everywhere along the terrace. * * * * At the point on the chart marked as the location of a workshop, we discovered about a hundred implements, and the spalls could be numbered by the thousand. Up to a late hour in the day no article of iron, copper, pottery or lead was found. Finally two small pot-sherds were picked up down near the creek, but away from the central locality of the village site."

A communication to the author from W. J. Griffing, an astute archaeologist, residing in Manhattan, is incorporated in this chapter, with others, in which he says: "The evidence is quite strong that this section was at one time the home of a numerous race of people skilled in the art of making pottery, and in manufacturing arrow-points, spear-points, knives, scrapers, etc.,

of flint; stone axes and hammers of flint and granite, pipes of red pipe stone, and numerous instruments and ornaments of bone and shell." He states further that sepulchral mounds are numerous on the tops of the bluffs overlooking the streams, one of which he opened "contained burned bones, arrow-points, etc, and also some old-fashioned glass beads, blue and white in color, and a short coil of brass wire, showing contact with the whites."

Mr. Brower believes that he has found here the mythical Quivira, the ultimate goal of Vasquez de Coronado, who in 1540-41 led a band of Spanish marauders from the City of Mexico westward to the Pacific coast, thence north through the present Mexican states of Jalisco, Sinaloa and Sonora, thence eastward through Arizona into New Mexico as far as the old Pecos pueblo, from which place he marched in a northeastern direction, crossing the Arkansas river and proceeding, among herds of buffalos, and prairie-dog towns, which he well describes, across the plains to a considerable river on which was situated a village of savages, where, finding neither city nor province of Quivira, nor indications of gold or other portable wealth, he retraced his steps. A hundred miles south of Santa Fe are yet to be seen the ruins of an old pueblo known as Gran Quivira, described by Gregg in his "Commerce of the Prairies," and yet marked on maps of New Mexico. It is strange that a scholar of the acumen and penetrating discernment that distinguished Mr. E. G. Squier should have adopted the error, entertained by several less-informed historians, of tracing the course of the Spanish expedition from Pecos into the plains and around to the Quivira named (probably not then known to them), so short a distance, and south, of their starting point. How Coronado knew that he had reached the fortieth parallel of latitude, as he states, is not explained. But the faithful descriptions he gives of the streams he crossed, of the buffalo and prairie dogs, and roving Indians and their lodges, would be sufficient without the corroborative testimony of Jaramillo and Castaneda, historians of the wonderful journey, that he reached the Kansas river, the point of his countermarch, where he was informed by the Indians that a hundred miles farther on was a large river "two leagues wide" (the Platte or Missouri). The Quivira he sought had probably no existence, and the accounts of its wealth and magnificence were wholly inventions of his guide, "the Turk," to lure him far into the treeless wilderness where he would perish from fatigue and starvation.

To the question, to what race of men can the establishment of this (Elliott) village be ascribed? Mr. Brower answers: "That they were not of the mound-building race of men is practically certain. That they were probably Quivirian Indians, whomsoever they may have been, is possible." In support of this hypothesis he sums up the following conclusions:

1. The evidence of the village site itself, and of several other similar seats of Indian occupancy.

2. Their location on both sides of the Kansas river, "the large stream," as stated by Coronado.

3. Remains of pottery and stone art of various kinds, proving the presence of the mound-builders, and probably other people of different degrees of culture, prior to that of the Quivirans met there by the Spaniards.

4. Presence of glass beads and brass wire of European make in a mound, confirmatory of Coronado's statement that he distributed such articles among the Indians.

5. That this, and surrounding village sites described in this locality, are between the 30th and 40th degrees of latitude; and he may have added, are about a hundred miles from a great river beyond.

The exact northern limit of Coronado's march may never be known with certainty. It is not improbable that he gazed upon the limpid waters of the romantic Kaw at south Manhattan or Topeka. Let that be as it may; the Elliott Indian village site is a discovery of importance; not so valuable as a contribution to American history, however, as to our archaeology. At this distance from the outcrop of limestone and blue flint, and with Mr. Brower's data as the sole basis for correct deductions, we cannot escape the

conclusion that this ancient village site was a flint mine and vast workshop from time immemorial, as was Flint Ridge in Ohio —and also the quarries of Catlinite in Minnesota—a "neutral strip" observed as a haven of peace if not friendship, where all tribes, near or remote, came for their supplies of raw material, ignoring for the time their strifes and animosities.

Flint was a valuable commodity to our primitive people; indispensible as a means of defense and life-support. It was nowhere to be obtained on the great table lands between the Mississippi and Rocky Mountains, and the sources of supply in isolated outcrops were rare. The evidences observed by Mr. Brower in and around the old village sites and camping places in that blue flint region, of different degrees of mechanical skill in working stone and pottery, in relics of copper from the lakes and of marine shells from the seaboard, and of diverse methods of life, point to the coming together of tribes from widely separated districts to this rendezvous for a specific purpose. The glass beads and brass wire found in the burial mound with the bones of an Indian only prove that this flint ridge was still the source of stone weapons subsequent to his contact with Europeans.

The opinion here expressed is merely suggestive; intended to stimulate further investigation and induce archaeologists to scan that deposit of blue flint closely for quarry pits and rude mining appliances.

J. F. S.

In this issue is an interesting paper on The Lake Dwellers of Switzerland, written by a bright, young law student who passed the greater part of last summer about the Alps and Swiss lakes. He sailed from New York again on the 8th of last month to spend the coming summer in Italy, and has kindly promised us while there to write concerning the progress of excavating the ruins of Pompeii, the recent discoveries made there, and of other matters connected with European archaeology.

In this number we publish the second paper of the series by Prof. Warren K. Moorehead, minutely describing his exploration of the famous Hopewell group of mounds in Ross County, Ohio. Since the close of the World's Columbian Exposition, in 1893, the public have been anxiously expecting this report from the illustrious scientist who was in charge when the exploration was authorized. As there seemed not the remotest indication of its appearance from that source during the century, Prof. Moorehead, who did the work, has yielded to the persistent requests of archaeologists from all parts of the country to give them, while they yet live, the details of his wonderful discoveries. The deposits of strange art remains, of rare materials employed, and surprising evidences of advanced culture and weird superstitions revealed by this investigation, constitute it the most interesting and valuable revelation of aboriginal life yet made within the limits of the United States. It startled archaeologists throughout the world, and Prof. Moorehead's complete report of it will claim their earnest attention.

J. F. S.

The world of science has been apprised by the newspapers of the death of Prof. Edward D. Cope, of the University of Pennsylvania, at his home in Philadelphia, on the 13th of last April. We mention this sad occurrence to offer our tribute of high esteem and respect for the eminent scientist, profound scholar and genial gentleman, who gained the highest distinction here in his chosen field, and has gone to the reward to which he was so well entitled

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A movement has been inaugurated in Arizona to secure means and legislation for the preservation of that grandest and most perfect ruin of the Cliff Dwellings of the Verde Valley, locally known as "Montezema's Palace." An effort was made to induce the last legislature of Arizona to appropriate the sum of $3,000 for this purpose, but failed. And now, a few intelligent and public spirited individuals, headed by Dr. Miller, of Prescott, and Frank C. Reed, of Flagstaff, will endeavor to raise by pri-

vate subscription, a sufficient amount to ecure this splendid ruin from further mo-estation by vandals and disintegration by he elements. It is a very commendable bject, and should receive generous sup-ort. Those disposed to give it material aid can do so by remitting their contribu-ions to Frank C. Reed, at Flagstaff.

It is scarcely necessary to call the reader's attention especially to the paper in this issue by Mr. J. W. Seever, Secretary of the Missouri Historical Society, descriptive of certain flints and a pair of idols recovered from a stone grave in Tennessee. These flints, collectively, for exquisite workmanship, extraordinary lengths and forms, and fine proportions, constitute the most marvelous find of prehistoric art in working this material yet discovered. The excellent drawings for their illustration by a first-class artist, Mrs. Alice Martin, of Virginia, Ills., are strictly accurate, but necessarily on a reduced scale that fails to convey an adequate impression of the beauty and strange designs of these curious objects.

J. F. S.

Although the Algonquin stock of Indians covered a vast part of the northeastern portion of the continent, yet our data regarding it, in some lines, are extremely meagre. In linguistics we have practically no texts available for study. It is true, there are hymn books and Bibles in the Algonquin dialects, but these are the white man's thoughts and words put into Indian, while we have practically no Indian logic and composition with interlinear translation. In this line we have much more regarding some smaller western tribes.

The Bureau of Ethnology has felt the importance of securing information regarding tribal organization among the Algonquin tribes before such bonds have been supplanted by white methods. Professor W. J. McGee, therefore, has gone to Iowa to investigate this matter among the Sacs and Foxes.

H. I. S.

ANTHROPOLOGY AT THE UNIVERSITY OF WISCONSIN.

A course in Anthropology is now offered by Prof. J. H. Raymond at the University of Wisconsin. It is classed under Sociology and includes the discussion of the antiquity of man.

Archaeology, as a method of reconstructing ancient sociology, is finding its place in the courses of study of our foremost universities.

As it is found useful in studying the laws of human activities, it will be extended to other educational institutions and broadened in those where it has already entered.

A clause in the new tariff bill now before Congress imposes a duty on all antiquities. This clause is intended to cover antique tapestries and bric-a-brac imported to decorate the homes of wealth. Such material being a luxury may well be subject to duty, but as the clause now stands it shuts out scientific material for museums. While libraries and colleges can import books, no person or institution can secure foreign antiquities without paying the duty. This, of course, shuts out Mexican, Peruvian and other archaeological collections needed by our students of prehistoric America.

Efforts are being made to qualify this measure so that material for scientific study may be imported free of tariff.

Dr. Carl Lumholtz has returned to New York from his three years' expedition through Western Mexico. This expedition was sent out by the American Museum of Natural History to collect ethnological specimens and to investigate the people of the Sierra Madre Mountains. Dr. Lumholtz has secured many archaeological specimens in addition to those of ethnological value, and has taken photographs, measurements and notes of the native people.

H. I S.

BOOK REVIEWS.

The Antiquities of Tennessee and the Adjacent States. And the State of Aboriginal Society in the Scale of Civilization Represented by them. A Series of Historical and Ethnological Studies. By Gates P. Thruston. Second edition. Cincinnati, O., The Robert Clarke Company, 1897.

From the long-established and reliable publishing house of The Robert Clarke Company, we have received a copy of the expected second edition of General Thruston's great book on the Antiquities of Tennessee. This splendid work is so well known and occupies such high rank in our archaeological literature, that a detailed review of it here would be both superfluous and out of place. Since its first appearance, in 1890, it has been recognized, here and in Europe, as a contribution to science of rare interest and value. The depth and extent of the author's researches; his scholarly and elegant style of expression, with its accurate and admirable descriptions, and profuse and fine illustrations, constitute it a production of exceptional worth and excellence.

The first edition has long since been exhausted, and the increasing demand for it has impelled the author to reissue the book, to which has been added two supplementary chapters, many notes and new illustrations, some alterations of previous conclusions, and ample accounts of all recent archaeological discoveries in the region of which it treats.

The new edition appears in superior binding; and its mechanical execution, in The Robert Clarke Company's best style, cannot be excelled.

Influence of Environment Upon Human Industries and Arts, by Prof. Otis T. Mason.

This monograph, reprinted from the Smithsonian Annual Reports for the year 1895, comprises one of Prof. Mason's Saturday lectures, delivered in the hall of the U. S. National Museum. It has much of the terseness, depth of thought and uniqueness of expression that characterize all of his valuable contributions to anthropological science. In this hour's talk he reviewed the influences of man's environments from the mighty power of the sun down to the most commonplace agencies, and man's activities and capacities in every phase of life. His deductions are, as usual with him, clear, ingenious and philosophical. In a concluding paragraph he says: "The heir of the ages is one who owns the ages. He is the master of the ages, not their slave. Their lands and resources, their powers and machines, their productions and commerce, their accumulations and enjoyments are his to control. The heir of the ages is a master spirit. He causes the fire to burn, he is not consumed by it; he causes the waters to flow, he is not overwhelmed by them; he rides on the wings of the wind; he harnesses the lightning to his chariot. He is now the realization of the myth of Orpheus, at whose touch the rapid rivers ceased to flow, the savage beasts of the forest forgot their wildness, and the mountains moved to listen to his song." J. F. S.

The Discovery of Aboriginal Remains at Rockshelter, in the Delaware Valley. An Exploration of Durham Cave in 1893. An Exploration of Aboriginal Shell Heaps, Revealing Traces of Cannibalism, on York River, Maine. By Henry C. Mercer. The Atheneum Press, Boston, 1897.

Professor Mercer, the Anthropologist of the University of Pennsylvania, is justly classed among the distinguished American scientists. He is noted for the patient carefulness, exactness and reliability of his field observations. No object or condition, however insignificant, escapes his notice; and his clear descriptions, and pleasant way of telling what he saw, invests the dryest and minutest details with interest. An accomplished naturalist and scholar, indefatigable in his investigations, with no fixed theories to support at the expense of distorted facts, are assurances of the excellence and accuracy of his work.

The three monographs above named are reprints from Volume VI, of the University

of Pennsylvania's publications. Where ordinary explorers would have seen nothing worth reporting, Professor Mercer's diligent search was rewarded by finding, in the accumulation of earth on the floor of an offset to the Durham cave, portions of a peccary's skeleton, an animal believed to have long since been extinct in all the region north of the Texan Red river. And in the small shell heaps of Maine he discovered, not only evidences of cannibalism practiced by the aborigines about whose camping place the shells and other refuse collected in low mounds, but also the remains of the dog—or his canine kinsman, the wolf. These are all important discoveries that bear with force upon heretofore controverted questions. There seems but little room to doubt the identity of the osseous remains since that point has been determined by so eminent an authority as the late Professor E. D. Cope. Yet, additional corroborative evidence in proof of the recent existence of the peccary in the latitude of the Delaware valley, may be deemed necessary for reaching final and definite conclusions.

These reports of Professor Mercer's investigations should have a wide circulation among students of early life in America, and cannot fail to claim their earnest attention.

Annals of Iowa. A Historical Quarterly. Published by the Historical Department of Iowa. Des Moines, April, 1897.

This pamphlet, of eighty pages, is No. 1, volume III, of the third series; is well printed and fully illustrated. Its initial paper, by Samuel Calvin, State Geologist, on "Pleistocene Iowa," is a very able production, presenting a graphic account of the closing period of the geologic period in the northwest. Then follow historical reminiscences, personal recollections of past events, biographies, obituaries and statistics; all of interest and value to the citizens of Iowa especially and to the reading public generally. Historical records of this kind, if maintained and published by all the states, would prove of incalculable value and aid to the future historians of our country.

A Table of the Geographical Distribution of American Indian Relics in a Collection Exhibited in the American Museum of Natural History, New York, with Explanatory Text, by A. E. Douglass.

Until recently but little attention has been devoted by American Archaeologists or museum curators to the classification of stone art remains, or the preponderance or scarcity or entire absence of certain specific types in different localities. At present this branch of the science is becoming one of much interest and theoretical value.

In this issue of The Antiquarian we present a well prepared paper on the classification of flint implements in the U. S. National Museum by its learned Curator of Prehistoric Antiquities, Dr. Thomas Wilson, that will be found of great convenience, and an important and reliable aid to collectors and students.

In the Bulletin of the American Museum, Vol. XIII, 896, is a more elaborate production in this line with the above title, designed to be a complete classification of all types of stone-age relics usually obtained in this country, with an extended tabular statement of their geographical distribution. This comprehensive work is based upon probably the largest and finest private archaeological collection in the United States, that of the author, Commodore Douglass, who has expended years of labor and lavish sums of money in its accumulation. It contains specimens in profusion of aboriginal art from every portion of America and is perfectly arranged, classified and catalogued. The table above named, with twenty pages of explanatory text of specific and descriptive classifications, is the fruition of much patient and careful labor, with the adjuncts of years of observation and study.

It should have a wide circulation among our archaeologists, and with that view, if found practicable, we may reprint it entire in our pages. If not, we will endeavor at the earliest opportunity, to give our readers the benefit of as full a synopsis as possible.

J. F. S.

Biblia. A Monthly Journal of Oriental Research. Meriden Conn., April, 1897.

This twenty-nine page periodical is the American organ of the Egypt Exploration Fund; the Palestine Exploration Fund and the Egyptian Research Account. Its publication is in the interest of those Funds for promoting and continuing Oriental investigations in Archaeology, Ethnology, Literature, Religion, History, Epigraphy, Geography, Languages, etc. It contains several articles interesting to those whose tastes are in the direction of Biblical history and Eastern Antiquities

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The Farmers' Institute is the title of a sixteen page monthly paper published at Mason City, Iowa, now in its eighth volume. It is always full of sprightly literary items and matter of value and interest to agriculturalists.

The Museum, a fourteen page monthly magazine, "devoted to Research in Natural Science," is published by the Museum Publishing Company at Albion, N. Y. It is well conducted and is especially adapted to collectors and general readers.

The Natural Science Journal of New Bedford, Mass., has added two more editors to its already efficient staff, namely Prof. W. A. Stearns, of Atlanta, Ga., Ornithologist, and Prof. Arthur M. Edwards, of Newark, N. J., of the Department of Microscopy. It bids fair to become a permanent and successful publication.

Canadian Natural Science News is another new candidate for popular favor. Vol. 1, No. 1, is on our table, a modest ten page pamphlet, to be published monthly at Baden, Ontario, by Edgar R. Boniface. This initial number is well printed and its contents are of the highest excellence.

The Osprey is the title of a neatly-printed, sixteen page periodical, published monthly at Galesburg, Ill., by The Osprey Company. It is edited by Walter A. Johnson, "associated with Dr. Elliott Cones of Washington, D. C.," and is devoted exclusively to the interests of ornithology. It is beautifully illustrated with cuts of birds from paintings by Louis Agassiz Fuertez, who is said to be the equal of Audubon as a painter of birds.

The Aztecs of Ancient Mexico is the subject of a course of six lectures offered by Professor Frederick Starr, of the University of Chicago. A syllabus of these lectures is issued by the university press and may be used as an outline for studying that people. References are given to the authorities quoted, so that the student has in the syllabus a guide to the literature which he would first study. There is also a series of exercises and questions following each subject to facilitate in mastering it.

Professor Starr treats the language, mythology, picture writing, ancient manuscripts or codices, daily life, industrial arts, dress, architecture, song, music, the dance, society, government, land tenure, religion and mortuary customs.

In the May number of the Popular Science Monthly is a very interesting history of the inception, growth and condition of the Academy of Sciences of Davenport, Iowa, written by Professor Frederick Starr, of the University of Chicago. The Academy is about to publish its seventh volume of Proceedings; the sixth, already issued, being of the highest standard of ability and value to science.

James Terry is suing the American Museum of Natural History in the U. S. Circuit Court to recover $4,612.75, with interest, which he claims as the balance due for an archaeological and ethnological collection sold by him to the Museum for $38,000 on June 5, 1891. Of this sum he received ten installments, leaving the balance sued for.

On the part of the Museum it is alleged that some of the articles in the collection were donated to the institution through Mr. Terry as its agent, and consequently he has no right to demand payment for them. He says that he spent nearly twenty years in forming the collection, which consisted of about 26,000 different pieces.

J. F. S.

CORRESPONDENCE.

In camp near Farmington, San Juan county, New Mexico, May 4, 1897.

Editor of The Antiquarian:

Since here I have been examining the large round and square buildings up Chaco Canon. In some of the ground rooms, graves have been dug below the floors and bodies placed therein, together with pottery, mats, wooden implements, etc. Within a space of three miles there are more than thirty ruins, ranging from one containing several hundred rooms, down to two and three compartment structures. I have never seen pottery fragments, mortars, metates, etc., so numerous upon the surface. There are wagonloads of them.

How the builders existed I am unable to understand, for the is scarcely any water to be found to day. Our party experiences great difficulty in securing even sufficient for cooking purposes.

WARREN K. MOOREHEAD.

A PREHISTORIC TOMB.

In the fall of 1875 my attention was called to a very singularly constructed and interesting mound on the farm of G. W. Cole. One of the farm hands, while plowing over a low mound in a field near Pond Creek, the point of his plow caught on quite a large stone, which impeded his progress. In removing the stone, which stood on end at an angle of about 45, he discovered another next to it in about the same position. In removing this, another was found, and another, until he had unearthed about a wagonload of the stones, when a cavity or vault was discovered. In this vault was found ashes, some fragments of stone and flint and a few pieces of burnt bone. This mound I visited the next day and found enough of the stone in position to enable me to form an idea of the manner in which it was constructed. I examined what bones were left and judged them to be human bones. The vault was constructed of stone about 18 inches long, 12 inches wide and 2 inches thick. The first tier of stone on each side, which formed the cavity, were placed on end about 18 inches apart and leaned together at the top so as to form a vault prismoidal in shape about 6 feet long. Then tier after tier of stone were placed in like manner against each other until the whole arrangement was 6 or 7 feet square. The inner side of the first tier of stone showed evidence of having been subjected to a great degree of heat. But on the one side or top of the deposit of stone there were no signs of fire. From appearances I should judge that the body for cremation was placed in the vault and then fired until all was consumed and then the whole was covered with earth. This mound was about three feet high and 20 feet broad at the base. The nearest point at which stone of the size used could have been obtained is about one-third of a mile from the mound.

Barnesville, O., May, 1897. WILLARD B. DOBBINS.

Editor of Antiquarian:

The April number of The Antiquarian has arrived. Was pleased with its appearance and contents. I fear that I did not give prominence enough in my article to the "game" theory. That is the real purpose, I believe, for which the "plummets" were used. In your editorial you state that my theory "lacks convincing evidence." My dear sir, is that not true of all the other theories? The fact that plummets are not battered or broken is no refutation whatever. If they threw the missile at a mark, perhaps a circle on the ground, they would not be likely to choose the surface of a rock for that mark, but rather a spot on the soil. Some few of them are battered, however, but that does not prove my theory. I have talked with Professor Starr with regard to my "game-missile" theory and he seems to consider it fully as plausible as any of the theories advanced. As to the labor in polishing and shaping—I have specimens of axes of hard material bearing as high a finish or polish as any plummet I ever saw. According to your views they could not be used as axes on account of the work involved. They must have some use or purpose, and until we find something better I must continue to believe that my "game-missile" idea is a little nearer the mark than either of the others (eight in number). It has evidence, if not "convincing evidence," and in this it stands as strong as the ceremonial or plummet. Common beach pebbles would not serve the purpose

better nor as well, because they would not be true in their flight. As well say that any rough stick would serve the purpose of an arrow-shaft. I did not enlarge on the subject in my article on account of economy of space. I expected criticism and thank you for your editorial comment.

Joliet, Ill., May 14, 1897. F. M. MUHLIG.

A BURIAL OF PREHISTORIC MAN.

SOUTHWESTERN PENNSYLVANIA.

A careful study of the modes of burial will doubtless aid much in determining the migrations of prehistoric man. Different waves of population have swept over the country between the Monongahela and the Ohio rivers. Among the facts leading to this conclusion, none are of more weight than those gleaned from the study of prehistoric burials here. A few years ago I was told that a human skull had been found in a stone-pile one mile northeast of Carmichaels, Pa. Getting permission of Mr. James Gregg, the owner, I proceeded to examine further.

A regular stone cairn was found. It was about ten feet in diameter and four and one-half feet high. It stood on the point of a knoll which projects nearly to a branch of Muddy creek. While searching for the skeleton of the skull taken, five other skulls were found. They had not been placed in one plane, but in different elevations; some above others. The feet were not in the same direction, but the general direction was to the southeast.

Five of these were remains of persons of large stature. The other was that of a woman or youth. The indications were that these bodies had been placed there at different times. After the body had been placed in the position to remain, which was on the back at full length, flat stones were taken, and beginning at the feet, they were set leaning toward one another over the body. These were regularly placed, each over-lapping the preceding one on the same side; these two series of stones extending around and covering, in an arch-shaped cyst, the entire body. These series of stones inclined to each other at an angle of about forty-five degrees. The stones were larger about the chest and touched one another along the crest. Over and about these were other stones, placed irregularly. Each cyst was similar to the others.

Charcoal and fragments of muscle shells were found miscellaneously scattered throughout the entire cairn. No implements were found. Below the feet of most of the bodies an excavation had been made in the natural surface of the soil. Its dimensions were about four feet long, two feet wide and six inches deep. The sides and ends of this were lined with flat stones standing vertically. The bottom was lined with smaller flat stones, lying on the side, each over-lapping others like the shingles of a roof. They showed clearly the order in which they were placed.

During July, 1896, a stone cairn was examined by me on the farm of Mr. Charles Adamson, three miles west of Waynesburg. Two stone cysts similar to those described were found. Near these was a circular arrangement of successive rings of flat stones overlapping one another, as before stated. Between these stones and the graves was a level, smooth pavement, about six feet long and one foot wide. Of the many graves examined by me, this form occurs second in numbers.

A. J. WAYCHOFF.

Waynesburg, Pa.

INVESTIGATION OF AN OLD INDIAN VILLAGE SITE.

The valley, situated in Northampton county, Pa., between what is known as Sailor's hill on the south, and Morgan's hill on the north, is beyond doubt the site of a village and hunting ground of a once numerous and industrious tribe of Indians. We think they were numerous on account of the large number of implements found in the vicinity, and industrious on account of the different materials from which these implements were made and the workmanship of the same.

Situated as they were, on the banks of the Delaware river, from which they could obtain fish in sufficient quantities for their use; surrounded on the other three sides by high hills abounding with game, and with a spring of fresh water right in the village, they were ready to withstand fam-

ine, cold, droughts, or even attacks of hostile neighbors for a considerable length of time.

It is indeed interesting to study the different materials from which their implements were made and the localities from which these materials were transported. By far the greater number of arrows were made of jasper, which was obtained from the jasper quarries near Durham, whose discovery and history we owe to the untiring efforts of that able and distinguished geologist and archaeologist, Mr. Charles Laubach, of Durham, Pa.

How the jasper was transported from Durham to the village, a distance of about five miles, is a question; but that it was transported is a certainty, for we have sufficient evidence to show that the implements were manufactured in the village. It is also a well known fact that implements of jasper were not manufactured at the quarries, as there have been but very few finished specimens found near them. The writer himself is in possession of an arrow, one of the few that were found near the quarries, and of which he is very proud on account of the scarcity of finished arrows found in that vicinity.

There are also a great many arrows, made of argillite, found, the material for which must have been carried from Bucks county, Pa., and manufactured here, as there are chips scattered around in profusion.

The writer has also an arrow made of slate, found on the site of the village, showing that these Indians traded with those in the slate region in the northern part of Northampton county, a distance of about twenty-five miles; also an arrow made of coal, which must have been made for an experiment or as an ornament, because it would not be of any use to kill game on account of its soft nature, but it will help to prove the industry of these Indians, who must have obtained it from the Indians in the coal regions, a distance of over fifty miles. It is also possible that the arrow might have been brought here by the Indians from the coal region during a time of war and shot into the camp, but it is not probable, because they always used arrows made of harder material for such occasions. The axes and hatchets used by these Indians differ very little in structure from those found in other localities, and are generally made from the "Glacial Gravel," which abound in this region. A very pretty axe was found at some distance from the site of this village, made of granite, which was obtained from one of the granite bowlders along the south side of Sailor's hill.

Insignia or banner stones have been found, nearly all of which are of the same shape, some being perforated and some are not.

Hammer-stones can be obtained in almost any quantity; some have a hole worn in one side and some in both sides, while others show signs of use on the entire surface.

Some excellent specimens of lapstones have been found with holes from one inch to four inches in diameter and about an inch in depth, weighing from two pounds to fifteen pounds. A small pendant or ornamental stone, made of slate, diamond shape, with a small perforation in the end, was found in the center of the village.

Netsinkers of different shapes and varying from one or two ounces in weight to two pounds, have been found scattered around. Also pieces of pestles, pottery and other implements may be found.

That this is an interesting field on which to work can be surmised by the foregoing report, which does not by any means describe all the different implements found, but for want of time and space we will defer until another time.

It has lately been discovered that on the top of Morgan's hill, on a small plateau overlooking the village just described, lived another tribe, or a part of the same tribe, but of which we know very little as yet for the reason that the writer did not discover the fact until late in the winter, when the weather was such as to make it unfit for outdoor investigation. But we hope that during the coming summer we will be able to investigate and make a report in full. Hoping this lengthy article will find favor in the eyes of the Archaeologists and others interested in the study of the primitive inhabitants of the Delaware valley, I submit it to the readers of The Antiquarian.

HARRY J. IVEY.

Raubsville, Pa., April 25, 1897.

IN THE FIELD.

Mr. Clarence B. Moore, of Philadelphia, who has carried on most complete explorations in the sand mounds of the St. John's river, Florida, publishing his results in a number of memoirs in the Journal of the Philadelphia Academy of Science, has continued his work North into Georgia. In the mounds of this new scene of his investigations, he has discovered a number of urn burials. Specimens of these urns, which are very much like some of those figured by Jones in his Southern Indians, have been sent to the Peabody Museum of Harvard University. The American Museum of Natural History, through the kindness of Mr. Moore, has also been the recipient of an urn with the bowl, which was found inverted over it as a cover.

(In the Smithsonian Annual Report for 1890, page 609, et seq., will be found an illustrated description of this mode of interment by Georgia aborigines, under the caption, "A Primitive Urn Burial," written by the editor of this journal.)

A stone grave, containing the skeleton of an Indian, was recently opened near Cairo, Ill., by a benighted Egyptian, who reports:

"The bones had the peculiar red tint which distinguish them from those of the white race. In the grave were numerous arrow-heads, broken pottery, pipes, etc. These were marked with peculiar hieroglyphics."

The bones of Indians found in stone graves have no tint or color that distinguishes them from the bones of any other race; and the Indians who buried their dead in those stone graves knew no more of hieroglyphics than they did of the integral calculus.

There is in Chicago one of the five oldest small boats known to exist in the world. It has just come from the Gizeh Museum of Antiquities, at Cairo. To the generosity of Mrs. Cyrus McCormick the Field Columbian Museum is indebted for a rare gift. E. E. Ayer learned in the course of his search for interesting things in Cairo last winter that there had been placed in the Gizeh Museum three boats of marvelous age and curious design. Investigation proved that the boats were indeed of the rarest value, for never before in archaeological history had there been discovered anything of the kind which approached these boats in age and interest. A Viking craft found in Norway some time ago was in use in about the year 1000 A. D., and at once became famous as by far the oldest specimen of water craft in existence. The boats in the Gizeh Museum, it was decided by the learned ones, were used at least 4,500 years ago, and were contemporaneous with the Dashur pyramids of the eleventh Egyptian dynasty, so says the Chicago Journal.

With this boat, which will be installed in the museum, and the two which remain in the Cairo museum, were two more, which still rest in the sands which stretch desolately from the Dashur pyramids.

The five boats were found buried at a considerable depth not far from the famous largest pyramid, and in such orderly form and with such mathematical relationship to the great pile of stone that it was evident that they had been buried with design at that particular spot.

The boats were found to be alike in the material of which they were constructed and in their general dimensions. The cedar of antiquity, which entered into so much of the construction of things of wood was used for building these boats. While the equipments of the boats had generally disappeared with time, the edges and ends were ragged and little warped, their shapely outlines still remained so rigidly in evidence that the modeler's skill in giving grace and shapeliness was evident. The boat that is in Chicago now was probably better preserved than any. It is thirty feet long, eight feet of beam and four feet of hold. It had been propelled, of course, by oars, but the points of contact for the oars were not in evidence. A well-preserved and peculiarly marked and designed piece of rudder of wood was found near the boats.

From the design and decoration of these boats, it is presumed they were in distinguished use, such as for the transportation of spices, perfumes and offerings of the nature that were carried to the resting place of the royal dead in the pyramids.